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10/596,245	06/06/2006	Toyounki Yokohara	09450/0204353-US0	4152
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EXAMINER GARCTA, ERNESTO				
ART UNIT 3679		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/596,245

**Applicant(s)**

YOKOHARA, TOYOAKI

**Examiner**

ERNESTO GARCIA

**Art Unit**

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Drawings***

The drawings were received on February 13, 2008. These drawings are acceptable; however, the drawings contain discrepancies.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first and second lines along the longitudinal direction (claim 5) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities:  
on page 17, lines 12-13, of the specification, it was amended to recite "longitudinal direction A1". This is inaccurate since the direction A1 is along the latitude rather than the longitude. Note that the new description A2 which is parallel to A1 is in the latitude and thus correct. Appropriate correction is required.

### ***Claim Objections***

Claims 2, 4, 5, 7, and 9 are objected to because of the following informalities:  
regarding claim 2, --a-- should inserted before "latitudinal" in line 4  
regarding claim 4, "ones" in lines 9 should be defined;  
regarding claim 5, --to be-- should be inserted before "arranged" in line 3; and,

regarding claims 7 and 9, a comma should be inserted after "portion" in line 4 and after "seat" in line 4. Appropriate correction is required. For purposes of examining the instant invention, the examiner has assumed these corrections have been made.

***Claim Rejections - 35 USC § 112***

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the metes and bounds of the claim is still unclear. In particular, it is unclear whether the socket and the globular ball portion of the ball stud are claimed as part of the bearing seat. For purposes of this Office action, the examiner has considered the socket and the globular ball portion in combination with the bearing seat. Further, the recitation "that are respectively opened" in line 6 is redundant since concave portions are inherently opened.

Regarding claim 2, the recitation "the housing concave portions are respectively opened on the sliding surface" in line 3 is redundant since claim 1, lines 6-7, already has set forth the same subject matter. Further, the recitation "longitudinal direction position" in lines 4 and 5 makes unclear whether this positions is one of the first and

second adjacent longitudinal positions recited in claim 1, line 7, or a different longitudinal position than those recited in claim 1, line 7.

Regarding claim 3, the metes and bounds of the claim is unclear. In particular, it is unclear whether the "predetermined direction" recited in line 3 is the longitudinal direction as recited in claim 1, lines 7 or some other direction. It is unclear how the "opening areas" in line 4 are determined by the adjacent lines, which are points of reference. Is there something physical between the lines? The recitation "respective opening areas" in line 4 makes unclear whether these opening areas are the same opening areas as recited in claim 1, line 11, or other forms of the opened areas. The recitation "the mutually adjacent lines" in line 4 lacks proper antecedent basis. Further, the recitation "a predetermined direction" in line 4 makes unclear whether this is another predetermined direction than that recited in line 3, or another predetermined direction.

Regarding claim 4, the recitation "the longitudinal direction of the first tier", in line 7, lacks proper antecedent basis. Note that lines 4-5 recites that the first tier is along the latitudinal direction instead. Further, the recitation "along the latitudinal direction" in line 8 makes unclear what is along the latitudinal direction. The recitation "the tier north of the equator side" in lines 10-11 lacks proper antecedent basis.

Regarding claim 5, the metes and bounds of the claim is still unclear. In particular, it is unclear whether the socket is claimed as part of the bearing seat. For

purposes of this Office action, the examiner has considered the socket in combination with the bearing seat. Further, the recitation "having opened areas" in line 5 is redundant since concave portions inherently have opened areas. The recitation "in a manner opposed to an outer circumferential surface of the ball portion" in lines 6-7 is in reference to a component not claimed, i.e., the globular ball portion. Note that lines 2-3 inferentially recite the ball portion and not that the ball portion is part of the bearing seat.

Regarding claim 9, the metes and bounds of the claim is unclear. In particular, it is unclear how the recitation "the ball portion rotatably held in this bearing seat has a stud portion provided in a protruding condition from the ball portion" in lines 4-6 further limits the structural features of the bearing seat. Note that the ball portion has been inferentially recited in claim 9, lines 2-3, and thus the ball portion of a ball stud is not part of the bearing seat. For purposes of this Office action, the examiner has considered the stud portion and ball portion as parts of the bearing seat. The recitation "the opening portion" in line 6 lacks proper antecedent basis.

Regarding claims 6 and 7, the claims depend from claim 1 and therefore are indefinite.

Regarding claim 8, the claim depends from claim 5 and therefore is indefinite.

***Claim Rejections - 35 USC § 102***

Claims 1-5, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Owens et al., 5,247,873.

Regarding claim 1, Owens et al. disclose, in Figures 4, 7, and 8, a ball joint bearing seat **400** is provided in a socket **320** with an opening **329**. The bearing seat **400** comprises a spherical sliding surface **A1** (see marked-up attachment) that rotatably holds an approximately globular ball portion **315** of a ball stud **300** arranged in the socket **320**. The bearing seat has a latitudinal direction, a longitudinal direction, and an opening communicating with the opening in the socket **320**. The bearing seat further comprises housing concave portions **A2,A3** along first and second adjacent longitudinal direction positions **A4,A5** on the sliding surface **A1** in a manner opposed to an outer circumferential surface of the ball portion **315**. The concave portions **A2,A3** have opened areas which are different from each other (note that their sizes are different; one wider than the other).

Regarding claim 2, as best understood, the housing concave portions **54** are adjacent to each other and different in a latitudinal direction position and another longitudinal direction position from each other.



Regarding claim 3, as best understood, the housing concave portions **A2,A3** form lines along the longitudinal direction. Opening areas of the concave portions are different from each other.

Regarding claim 4, the housing concave portions include first housing portions A7,A8 (see marked-up attachment) and second housing portions A9,A10. The first housing portions A7,A8 form a tier along the latitudinal direction north of the equator having opening areas almost equal to each other. The second housing portions A9,A10 form other tiers north of the equator in the longitudinal direction.

Regarding claim 5, Owens et al. teach, in Figures 4, 9, and 8, a bearing seat **330** provided in a socket **320** with an opening **329**. The bearing seat **300** comprises a spherical sliding surface **A1** and an opening communicating with the opening **329** in the socket **320**. The bearing seat **300** further comprises housing concave portions **A1,A2,A7-A10** having opened areas on the sliding surface in a manner opposed to an outer circumferential surface of a ball portion **315**. The concave portions **A1,A2,A7-A10** are respectively provided so as to form a first line **A11** and a second line **A12** along the longitudinal direction at one side of an equator. The concave portions form tiers along the latitudinal direction (the tier are perpendicular to the lines). The first line **A11** is closer to the equator. The opened areas of the second line **A12** are equal to each other and less than the opened areas of the first line **A11**.

Regarding claims 7 and 9, the ball portion **315** has a stud portion (unreferenced) provided in a protruding condition from the ball portion **315**. The ball portion **315** is rotatably held in the bearing seat **330**.

***Claim Rejections - 35 USC § 103***

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pazdirek et al., 6,505,989, in view of Clevite, GB-847,171, and further in view of Otsuka, GB-2,229,765.

Regarding claim 1, Pazdirek et al. disclose, in Figure 1, a ball joint bearing seat **30** is provided in a socket **12** with an opening. The bearing seat **30** comprises a spherical sliding surface that rotatably holds an approximately globular ball portion **42** of a ball stud **40** arranged in the socket **12**. The bearing seat **30** has a latitudinal direction, a longitudinal direction, and an opening communicating with the opening in the socket **12**. However, Pazdirek et al. fail to disclose the bearing seat **30** further comprising housing concave portions along first and second adjacent longitudinal direction positions on the sliding surface in a manner opposed to an outer circumferential surface of the ball portion 42, and the concave portions of the longitudinal direction positions having opened areas which are different from each other.

Clevite teaches, in Figure 22, a bearing seat 190 comprising housing concave portions along first and second adjacent longitudinal direction positions on a sliding surface in a manner opposed to an outer circumferential surface of a ball portion 176 to retain lubrication (page 7, lines 110-124). Therefore, as taught by Clevite, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide concave portions on the bearing seat of Pazdirek et al. along first and second adjacent longitudinal direction positions on the sliding surface of the bearing seat to retain lubrication.

Otsuka teaches, in Figure 2, concave portions of first and second adjacent longitudinal direction positions having opened areas which are different from each other to make somewhat indefinite in shape and size cavities (page 5, 9-16). Applicant should note that placing concavities in either the ball or the bearing seat is well known as evident by Clevite at page 7, lines 110-124. Therefore, one skilled in the art would have placed cavities on both the ball and the bearing seat of Pazdirek et al. to retain lubrication. Given that the cavities would have been placed all over the spherical surface of the bearing seat as taught in Clevite, one would have used the method in Otsuka and thus provide the concave portion along a first and second adjacent longitudinal direction positions having opened areas different from each other so that lubricant readily flows into and out of the depressions with relative angular displacement of the ball (see abstract). Therefore, as taught by Otsuka, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the

concave portions of the first and second adjacent longitudinal direction positions having opened areas which are different from each other to make somewhat indefinite in shape and size cavities so that lubricant readily flows into and out of the depressions with relative angular displacement of the ball.

Regarding claim 6, given the modification, the housing concave portions would have been opened respectively in approximately circular forms.

***Allowable Subject Matter***

Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

regarding claim 8, the prior art of record does not disclose a bearing seat comprising housing concave portion opened respectively in approximately circular forms (lines 3-4) in conjunction with being respectively provided so as to form first and second lines along the longitudinal direction at one side of an equator and form tiers along the latitudinal direction wherein the first line is closer to the equator and the opened areas in the second line are equal to each other and less than the opened areas of the first line

(claim 5, lines 7-10). The closest prior art, Owens et al. suggest the location of the concave portions and the tiers; however, there's no motivation to change the elongated concave portions to circular forms since the lubricant would not be able to travel to the fluid end 360 as suggested in column 3, lines 59-61, using circular forms.

### ***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. In particular, the new recitations "along first and second adjacent longitudinal direction positions" in claim 1, line 7, "the concave portions of the first and second adjacent longitudinal direction positions have opened areas which are different from each other" in claim 1, lines 10-11, "along a predetermined direction" in claim 3, lines 4, "north of an equator" in claim 4, line 5, "other tiers" in claim 4, lines 7, "first and second lines along the longitudinal direction at one side of an equator" in claim 5, lines 7-8, and "the first line is closer to the equator and the opened areas in the second line are equal to each other and less than the opened areas of the first line" in claim 5, lines 9-10, necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 571-272-7083. The examiner can normally be reached from 9:30AM-6:00PM. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached at 571-272-7087.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/E. G./

Examiner, Art Unit 3679

May 27, 2008

Attachment: one marked-up page of Owens, 5,247,873

/Daniel P. Stodola/  
Supervisory Patent Examiner, Art Unit 3679

Jaworski et al., 5,795,092

